# The Genus *Geissanthus* (Myrsinaceae) in the Chocó Floristic Province

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ABSTRACT. Studies on the plant diversity of Las Orquídeas National Park in Antioquia, Colombia, along with preparation of a treatment of the Myrsinaceae for *Flora de Colombia*, resulted in the discovery of four new taxa and two new combinations in *Geissanthus*. Examination of species known from the entire Western Cordillera of Colombia and the Chocó Floristic Province, from Panama to Ecuador, resulted in the discovery of 17 species from the area. An artificial key to the species of *Geissanthus* from the Chocó and Western Cordillera is presented, along with descriptions of four new species, *G. callejasii*, *G. betancurii*, *G. francoae*, and *G. cogolloi*. Three new combinations are made, *G. longistamineus*, *G. perpuncticulosus*, and *G. scrobiculatus*, and revised descriptions based on complete material are presented for *G. longistamineus* and *G. perpuncticulosus*.

RESUMEN. Como resultado de los estudios de la fitodiversidad del Parque Nacional Natural "Las Orquídeas," Antioquia, Colombia, y de actividades preliminares al tratamiento de Myrsinaceae para *Flora de Colombia*, se presentan cuatro taxa nuevos y tres nuevas combinaciones en el género *Geissanthus*. Al estudiar los especímenes de la Cordillera Occidental de Colombia y la provincia florística chocoana desde Panamá hasta Ecuador, se reconocieron 17 especies en la zona. Se presenta una clave artificial para separarlos, se describen las cuatro especies nuevas, *G. callejasii*, *G. betancurii*, *G. francoae*, y *G. cogolloi*, y se publican las tres nuevas combinaciones, *G. longistamineus*, *G. perpuncticulosus*, y *G. scrobiculatus;* además se proveen descripciones revisadas para *G. longistamineus* y *G. perpuncticulosus* basadas en el estudio de material completo.

Determination of collections from an ongoing floristic study of Parque Nacional Natural "Las Orquídeas," jointly conducted by the Fundación Jardín Botánico, "Joaquín Antonio Uribe" (JAUM) and the Missouri Botanical Garden (MO), concomitant with preparation of a taxonomic treatment of the Myrsinaceae for *Flora de Colombia*, required a review of the species of *Geissanthus* J. D. Hooker from the Cordillera Occidental of Colombia and the adjacent Chocó Floristic Province (sensu Gentry, 1982), which extends from the Darién of Panama southward to Los Ríos, Ecuador.

The genus *Geissanthus* was circumscribed by Bentham (1876) to include 11 taxa from the Andes, which he did not list, nor make the necessary combinations. Bentham described the genus as polygamo-dioecious, with a 3–5-lobed calyx, infundibuliform, 5-lobed corolla, linear-oblong anthers, and terminal panicles with spicate branches. The basis of his opinion that the taxa were polygamo-dioecious was the fact that fruit production per inflorescence branch is extremely low. After examining a number of species, I have concluded that there is a continuum from wholly staminate to wholly pistillate plants, but the most frequent condition is polygamous; the position of flowers for any particular sex on the inflorescence is apparently random. The flowers of each species appear to be monomorphic, the staminate ones of normal size but with hollow pistillodes, and the pistillate ones having staminodes slightly shorter, but normal-sized anthers, devoid of pollen.

In his worldwide monograph of the family, Mez (1902) distinguished *Geissanthus* from the other genera of the tribe Myrsineae by its free stamens, dorsifixed anthers, and the calyx closed in bud, opening later into irregular lobes. In that treatment, 25 species were recognized, of which 17 were new. Subsequent to that treatment, miscellaneous new species were added by Mez (1905, 1920), Macbride (1934), and Cuatrecasas (1951).

Agostini (1970) was the first worker since Mez to discuss generic delimitation among taxa assigned to *Conomorpha* A. DC. and *Stylogyne* A. DC. Agostini distinguished *Geissanthus* from *Stylogyne* and what was at that time the *Cybianthus* complex of genera (including *Conomorpha*), based on a combination of several characters, including: the terminal inflorescence; sessile or subsessile flowers; calyx lobes at first closed, then rupturing into 2–8 unequal segments; the petals fused ⅓ or more their length; and capitate stigma. Using those criteria, he transferred three taxa from *Conomorpha* and one taxon from *Stylogyne* into *Geissanthus*.

My studies have revealed that *Geissanthus* may be defined by its unique calyx, which is closed in bud and opens into 2–8 usually unequal lobes, co-

rolla with linear or oblong petals that are distally recurved at least 180° in anthesis, and the subversatile or versatile anthers, which are latrorsely dehiscent by wide or narrow longitudinal slits. *Stylogyne* may easily be separated from *Geissanthus* by its contorted corolla, with the lobe tips highly twisted in bud. *Cybianthus* may be separated from *Geissanthus* by its axillary inflorescences, stamens connate by their filaments to form a tube, the staminal tube adnate to the corolla tube, and the glandular granules present at least at the junction of corolla lobes and tube.

The present study has revealed 17 species of *Geissanthus* in the region, clearly the most diverse zone for the genus. Synonymies are given where appropriate, and complete descriptions are given only when new data have been revealed as a result of this study. Because there are perhaps an additional six undescribed taxa known from fragmentary material, the present key is tentative until a broader survey can be conducted.

Morphological terminology follows Lindley (1848) and Pipoly (1987, 1992). The 17 species of *Geissanthus* occurring in the region may be distinguished by the following artificial key.

KEY TO THE SPECIES OF *GEISSANTHUS* IN THE CORDILLERA OCCIDENTAL AND ADJACENT CHOCÓ FLORISTIC PROVINCE

1a. Leaves coriaceous, the margins revolute.
  2a. Inflorescence longer than the leaves.
    3a. Leaf blades 4–18.5 cm wide; inflorescence branches spicate.
      4a. Leaf blades bullate; petioles deeply canaliculate.
        5a. Branchlets and leaves rufous stellate-tomentose; leaf margin entire; pedicels 0.3–0.5 mm long ..... *G. callejasii* Pipoly
        5b. Branchlets furfuraceous-lepidote; leaf margin serrate; pedicels 2–3 mm long ..... *G. serrulatus* (Willdenow ex Roemer & Schultes) Mez
      4b. Leaf blades smooth; petioles marginate.
        6a. Branchlets angulate; corolla membranaceous ..... *G. betancurii* Pipoly
        6b. Branchlets terete; corolla coriaceous ..... *G. occidentalis* Cuatrecasas
    3b. Leaf blades 1.5–3.5 cm wide; inflorescence branches corymbose.
      7a. Leaf margins serrate; petioles 1.5–2.1 cm long; pedicels obsolete ..... *G. goudotianus* Mez
      7b. Leaf margins entire; petioles 0.5–1 cm long; pedicels 1.5–4 mm long ..... *G. quindiensis* Mez
  2b. Inflorescence shorter than or subequaling the leaves.
    8a. Branchlets angulate; leaf blades decurrent to petiole base; petioles marginate; panicles columnar.
      9a. Branchlets and inflorescence rachis glabrous; leaf blades nitid above; petioles 1–1.4 cm long ..... *G. ecuadorensis* Mez
      9b. Branchlets and inflorescence densely and minutely furfuraceous-lepidote; leaf blades sordid above; petioles 1.7–3.5 cm long ..... *G. longistylus* (Cuatrecasas) Agostini
    8b. Branchlets terete; leaf blades only slightly decurrent on the petiole; petioles deeply canaliculate; panicles pyramidal.
      10a. Leaf blades nitid above, the bases acute, the margins entire; pedicels obsolete; calyx obconic basally ..... *G. kalbreyeri* Mez
      10b. Leaf blades sordid above, the bases truncate, the margins serrate; pedicels 2.5–3.5 mm long; calyx truncate basally ..... *G. argutus* (Kunth) Mez
1b. Leaf blades membranaceous to chartaceous, the margins flat.
  11a. Leaf blades densely and prominently black perpuncticulose, or punctate and punctate-lineate.
    12a. Leaf blades oblong, elliptic, or narrowly oblanceolate, asymmetric, 2–5 cm wide.
      13a. Leaf blades nitid above; floral bracts cucullate; pedicels 1.8–2.5 mm long ..... *G. cestrifolius* (Kunth) Mez
      13b. Leaf blades sordid above; floral bracts flat; pedicels 2.5–3 mm long .... *G. cogolloi* Pipoly
    12b. Leaf blades widely oblanceolate to obovate, symmetric, 6–18 cm wide.
      14a. Petioles 0.5–1 cm long; calyx membranaceous, 2.7–3.2 mm long, black punctate-lineate ..... *G. angustiflorus* Cuatrecasas
      14b. Petioles 1–1.5 cm long; calyx chartaceous, 1.2–1.7 mm long, orange punctate ..... *G. perpuncticulosus* (Lundell) Pipoly
  11b. Leaf blades pellucid punctate or punctate-lineate, or inconspicuously black punctate and punctate-lineate (the glands not raised).
    15a. Branchlets quadrangular; leaf blades densely fufuraceous-lepidote below, the scales overlapping and appearing velutinous, the blade margin serrate; inflorescence from ⅔ to subequaling leaf length ..... *G. francoae* Pipoly
    15b. Branchlets terete; leaf blades sparsely furfuraceous-lepidote, not appearing velutinous, the blade margin entire; inflorescence ca. ⅓–½ leaf length.
      16a. Leaf blades scrobiculate above; calyx lobes hyaline, the margins regular, erose ..... *G. scrobiculatus* (Cuatrecasas) Pipoly
      16b. Leaf blades smooth above; calyx lobes opaque, the margins irregular, entire ..... *G. longistamineus* (A. C. Smith) Pipoly

NEW SPECIES OF *GEISSANTHUS*

**Geissanthus callejasii** Pipoly, sp. nov. TYPE: Colombia. Antioquia: Mcpio. Jardín, Alto de Ventanas, 15 km SW of Jardín, on road to Riosucio, 2,400–2,800 m, 05°30′N, 75°50′W, 9 June 1987 (infl. bud, fr), *R. Callejas, O. Marulanda, F. Roldán & H. Correa 3916* (holotype, HUA; isotypes, MO Nos. 3702266, 3702267).

Propter laminam coriaceam ellipticam vel oblanceolatam bullatamque, inflorescentiam quasi latam quam longiorem ramulam subspicatamque, lobos calycinos longitudine latitudos aequantes, *G. bogotensi* arcte similis, sed ab ea ramulis angulatis (non teretibus) dense rufostellati-tomentosis (nec dense adprese lepidoti), petiolis profunde canaliculatis (non late marginatis) 1.2–2 (nec 2–3) cm longis, lobis calycinis suborbicularibus vel ovatis (nec triangularibus), corollis 4.3–4.6 (non 3.2–4) mm longis, denique lobis corollinis oblongis (nec ovato-triangularibus) statim separabilis.

Tree to 4 m tall; branchlets strongly angulate, longitudinally ridged, 5–7 mm diam., densely rufous stellate-tomentose, persistent. Leaves alternate, the blades stiffly coriaceous, elliptic or rarely oblanceolate, (11–)14.5–17(–21) cm long, (4–)6–8.5 cm wide, apex acute, base acute, decurrent on the petiole, midrib and secondary veins deeply impressed above, decurrent to petiole base, prominently raised below, secondary veins 12–17 pairs, rufous stellate-tomentose above at first, early glabrescent, the resulting remnant pits from fallen trichomes giving a scrobiculate appearance, densely rufous stellate-tomentose below, the hairs at times with all branches pointing upwards from leaf surface, inconspicuously brown punctate and punctate-lineate, the margin entire, somewhat revolute; petiole deeply canaliculate, (1.2–)1.4–1.8(–2) cm long, densely and persistently rufous stellate-tomentose above and below. Inflorescence terminal, pyramidal bipaniculate, 9–17 cm long, 8–14 cm wide, the secondary branches 7–9 cm long toward base; peduncle, rachis, bracts, and pedicels densely rufous stellate-tomentose, the trichomes persistent; inflorescence bract unknown; peduncle obsolete to 2 cm; primary branch bracts unknown; secondary branch bracts membranaceous, oblong, 4–4.3 mm long, 2.8–3 mm wide, apex truncate, densely stellate-tomentose below, glabrous, densely and prominently black punctate and punctate-lineate within, the margin stramineous, entire, glabrous; floral bracts membranaceous, 1.3–1.5 mm long, 0.5 mm wide, apex obtuse, densely stellate-tomentose below, prominently black lineate within, the margin hyaline, glabrous, early caducous; pedicels cylindrical, 0.3–0.5 mm long. Flowers erect, green; fruiting calyx coriaceous, (2–)3–5-lobed, 2.4–3.1 mm long, the tube 0.3–0.7 mm long, extremely unequally divided, the lobes suborbicular to ovate, 2.1–2.8 mm long, 2.1–2.8 mm wide, apex acute, asymmetric, densely rufous stellate-tomentose medially without, glabrous within, inconspicuously black punctate, the margin scarious, hyaline, glabrous, undulate, and at times appearing erose; corolla membranaceous, campanulate, 4.3–4.6 mm long, the tube 1.2–1.3 mm long, the lobes oblong, 3.1–3.4 mm long, 1.4–1.5 mm wide, apex obtuse, reflexed 180° at anthesis, sparsely and prominently red punctate and punctate-lineate, the margin irregular, somewhat erose; stamens and pistil unknown. Fruit globose, 5–7 mm long and in diam., fruit green; densely and prominently black punctate and punctate-lineate, the exocarp thin.

*Distribution. Geissanthus callejasii* is known only from the type, from the Western Andean Cordillera, Alto de Ventanas, which is north of Cerro Caramanta, in an area where the broken terrain yields north–south-facing slopes, at 2,400–2,800 m elevation.

*Ecology.* This species is known to be occasional, near small watercourses in the montane and upper premontane wet forests.

*Etymology.* It is with great pleasure that I dedicate this species to Ricardo Callejas Posada, professor and curator of the herbarium of the Universidad de Antioquia; a friend, colleague, and preeminent authority on the morphogenesis, anatomy, and systematics of the Piperaceae.

With elliptic or rarely oblanceolate, coriaceous, and bullate leaves, panicles almost as wide as long, and calyx lobes as long as wide, *Geissanthus callejasii* is most similar to *G. bogotensis* Mez. However, the angulate and rufous stellate-tomentose branchlets, shorter, deeply canaliculate petioles, suborbicular or ovate calyx lobes, and oblong corolla lobes easily set *Geissanthus callejasii* apart.

**Geissanthus betancurii** Pipoly, sp. nov. TYPE: Colombia. Antioquia: Mcpio. Urrao, on trail to Páramo de Frontino, near Finca El Quince, 06°30′N, 76°10′W, 2,900 m, 18 Nov. 1988 (fl), *G. McPherson, F. Roldán & J. Betancur 13106* (holotype, HUA; isotypes, COL, MO, US). Figure 1.

Quoad ramulos subteretos, furfuraceo-lepidotos corticemque horizontaliter rimosem, laminas coriaceas obovatas ad apices acutas vel subacuminatas, petiolos marginatos, pedicelos obsoletos vel obconicos, inflorescentiam pyramidali-panicutam, *G. fragranti* valde affinis, sed ab ea ramulis 3.5–6 (non 7–10) mm diametris, laminis secus margines revolutis (non planis), pedicelis 0.2–0.3 mm longis (nec obsoletis), calyces coriaceis (non chartaceis),

antheris ovoideis (non oblongoideis) ad apices truncatis (nec apiculatis), connectivis epunctatis (nec atro-punctatis) praeclare distat.

Tree to 12 m tall; branchlets subterete to angulate, 3.5–6 mm diam., sparsely ferrugineous, furfuraceous-lepidote, the bark horizontally checked, glabrescent. Leaves alternate, the blades coriaceous, obovate, (10.5–)12.5–16 cm long, (4.3–)5–6(–7.4) cm wide, apex acute to subacuminate, base cuneate, decurrent on the petiole, midrib impressed above, prominently raised below, secondary veins inconspicuous, (18–)22–26(–30) pairs, smooth, sordid and glabrous above, pallid, moderately and minutely furfuraceous-lepidote below, sparsely and inconspicuously reddish black punctate, the margin revolute, entire, glabrous; petioles marginate, (1.3–)1.5–2 cm long, glabrous above, densely and minutely ferrugineous furfuraceous-lepidote below, glabrescent. Inflorescence terminal, a pyramidal pinnate panicle, (10–)13–18(–21) cm long, 10–19 cm wide at base, inflorescence bract unknown; peduncle, rachis, secondary branches and pedicels moderately and minutely rufous glandular-papillate, glabrescent; inflorescence bract unknown; peduncle ca. 1 cm long; secondary branch bracts unknown; floral bracts unknown; pedicels obsolete or obconic to 0.2–0.3 mm long. Flowers erect, white; calyx coriaceous, obconic, (2–3)4–5(–6)-lobed, 3.3–3.6 mm long, the tube 2.1–2.4 mm long, very unequally divided, densely translucent and rufous furfuraceous-lepidote without, the lobes widely ovate to narrowly lanceolate, 2.1–2.2 mm long, 0.7–1.8 mm wide, apex obtuse on wider lobes, acutish on narrower ones, densely and prominently brown punctate and orange punctate-lineate, the margin scarious, irregular, entire to subentire, glabrous; corolla carnose, campanulate, 4–5(–6)-lobed, 4.9–5.6 mm long, the tube 2.1–2.5 mm long, the lobes ovate, 2.5–3.1 mm long, 1.6–1.8 mm wide, apex acute, translucent, prominently brown punctate, glabrous, the margins irregular, entire, glabrous; stamens free, 4.9–5.6 mm long, the filaments membranaceous, flat, 3.8–4 mm long, hyaline, glabrous, not widened basally, inserted at corolla tube base, anthers versatile, ovoid, 1.7–1.9 mm long, 1–1.2 mm wide, apex truncate, base deeply cordate, longitudinally dehiscent by wide latrorse longitudinal slits, the connective hyaline, epunctate; pistil obturbinate, 3.8–4.4 mm long, the ovary 1.6–1.8 mm long, 0.7–0.8 mm diam., the style 2–2.2 mm long, the stigma capitate, the placenta subglobose, 0.3–0.4 long and in diam., apiculate, the ovules 4, buried in the placenta. Fruit depressed-globose, 8–12 mm long, 10–13 cm wide, reddish violet at maturity, densely and prominently black punctate and punctate-lineate, the exocarp thin.

*Distribution.* Endemic to the northern sector of the Cordillera Occidental and facing western slopes of the Cordillera Central, in the Department of Antioquia, Colombia, at 1,500–2,900 m elevation.

*Ecology. Geissanthus betancurii* is a rare forest treelet, growing in areas near creekbeds, on steep slopes.

*Etymology.* It is with great pleasure that I dedicate this species to Julio Betancur (COL), prodigious field botanist and specialist in neotropical Bromeliaceae.

The following characters indicate that *Geissanthus betancurii* is closely related to *G. fragrans* Mez, of the Venezuelan Coastal Cordillera: subterete, furfuraceous-lepidote branches with horizontally fissuring bark; coriaceous, acute or subacuminate leaves with marginate petioles; and pyramidally paniculate inflorescences with short, obconic or absent pedicels. However, *G. betancurii* may be easily recognized by its thinner branchlets, revolute leaves, short-pedicellate flowers with coriaceous calyx lobes, and ovoid anthers with truncate apices and epunctate connectives.

*Paratypes.* COLOMBIA. **Antioquia:** Mcpio. San Luís, Piedra del Castrillón, Cordillera Central, Ladera Oriental, 06°4′30″N, 74°59′74″W, 1,500–1,700 m, 16 Sep. 1988 (fr), *J. Betancur et al. 664* (COL, HUA, MO, US); Cordillera Occidental, 3–4 hours on foot SW of town, 06°01′N, 75°01′W, 1,500 m, 12 Aug. 1987 (fr), *D. Daly & J. Betancur 5335* (COL, HUA, MO, US).

**Geissanthus francoae** Pipoly, sp. nov. TYPE: Colombia. Risaralda: Mcpio. de Pereira, El Cedral, old road to Salento, 2,200–2,300 m, 11 June 1989 (fl), *G. Galeano, P. Franco, N. Ladino, E. Forero & A. Castillo 1955* (holotype, COL; isotype, MO). Figure 2.

Ob ramulos angulatos, adprese-ferrugineo-furfuraceo-lepidotos, folia pseudoverticillata, flores pedicellatos, calycem glandulari-papillatum, anthera lanceloideas, subversatiles necnon pistillo obturbinato, *G. perpuncticuloso* valde arcte affinis, sed ab ea laminis chartaceis (non membranaceis) subter squamis lepidotis superpositis sic a velvetum similis (nec dissite praeditis), secus margines serratis (nec integerrimis), petiolis (2–)2.5–3 (non 1–1.5) cm longis, calyce membranaceo (non chartaceo) urceolato (nec cupuliforme), corolla membranacea (non chartacea) 3–3.2 (nec 2.4–2.7) mm longa, antheris ad apices emarginatis (non obtusis), denique in sylvas montanas nebulosasque (non premontanas) incolens, facile distinguitur.

Shrub or small tree to 4 m tall; branchlets quadrangular, the angles subalate, 7–12 mm diam., densely ferrugineous furfuraceous-lepidote, the scales appressed, the scale margins overlapping, persistent. Leaves pseudoverticillate, chartaceous, the blades oblanceolate, (29–)32–39(–54) cm long, (9–)10–13(–16) cm wide, apex short-acuminate, the acu-

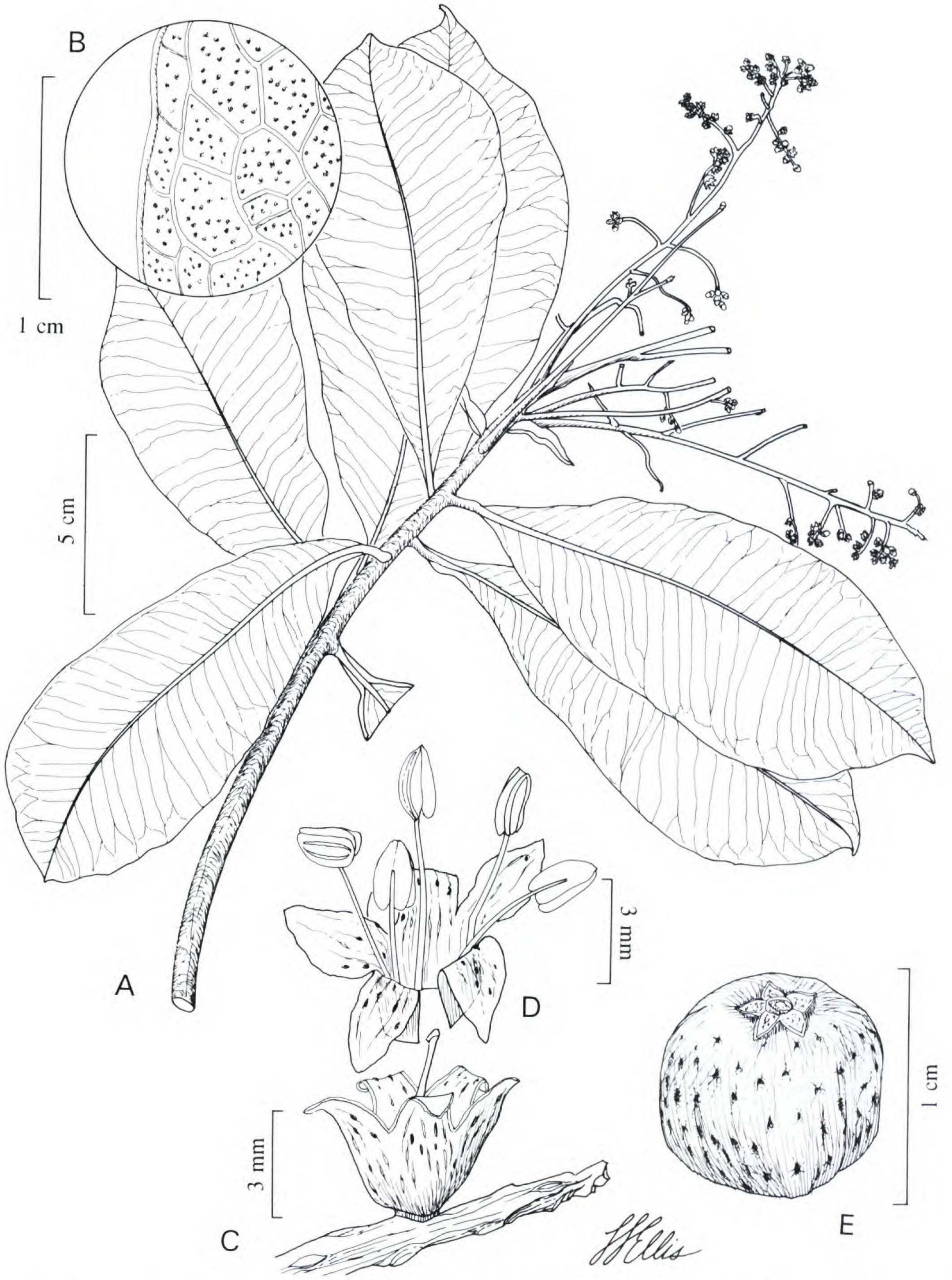


Figure 1. *Geissanthus betancurii* Pipoly. —A. Habit. —B. Detail of leaf margin. —C. Calyx. —D. Separated corolla. —E. Fruit, with calyx. A–D, drawn from the type. E, drawn from *Betancur 664*.

men 5–10 mm long, gradually tapering to an obtuse base, midrib impressed above, decurrent to petiole base, prominently raised below, secondary veins 19–29 pairs, scrobiculate and perpuncticulose above, densely ferrugineous furfuraceous-lepidote below, the scale margins overlapping and thus appearing velutinous, the margin serrate, the teeth vascularized; petioles deeply canaliculate, (2–)2.5–3 cm long, ta-

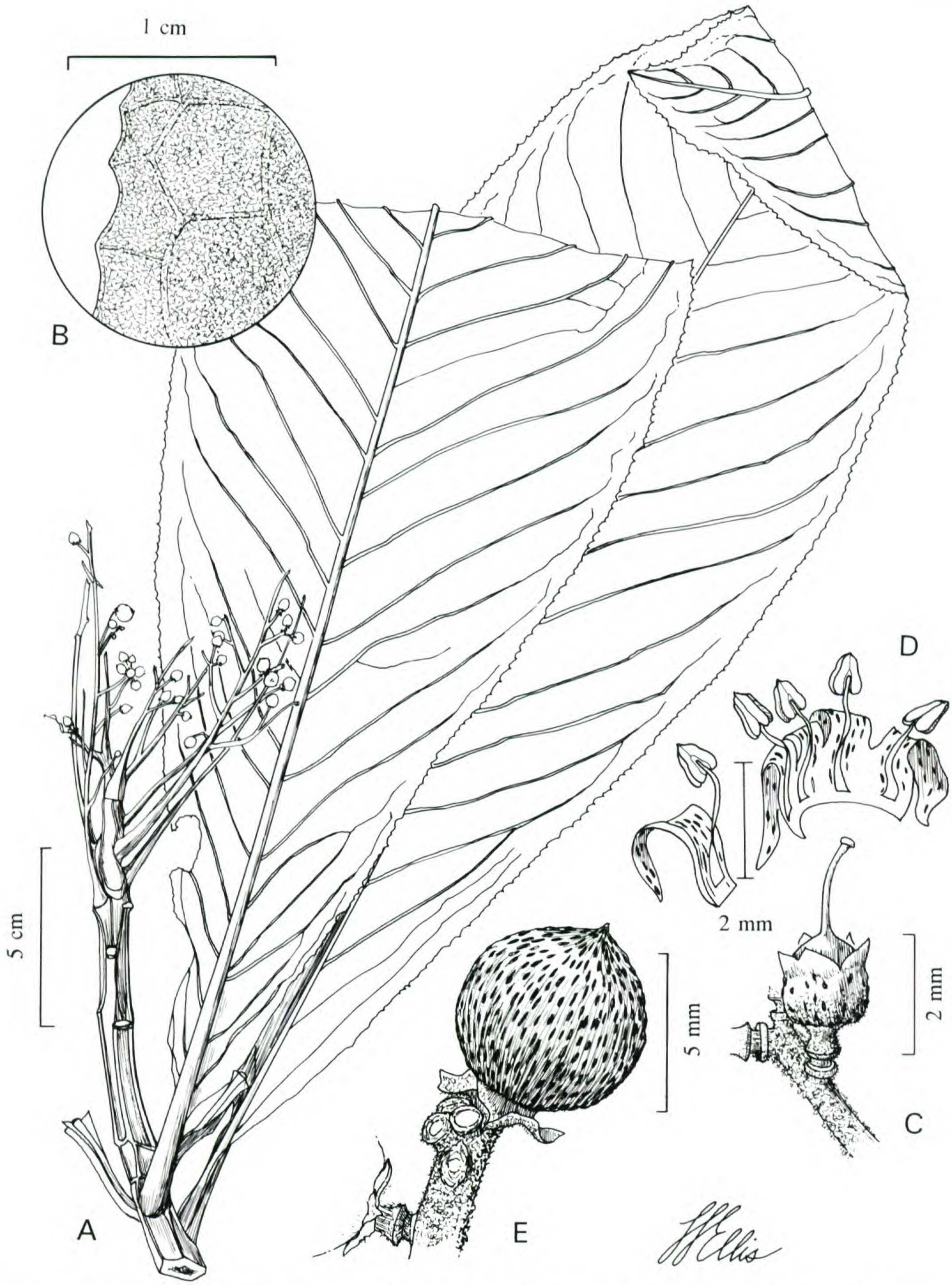


Figure 2. *Geissanthus francoae* Pipoly. —A. Habit. —B. Close up, leaf margin. —C. Calyx. —D. Separated corolla. —E. Fruit, with calyx. A, drawn from *Devia 250*. B–D, drawn from the type.

pered to the base, glabrous above, densely lepidote below, glabrescent. Inflorescence pyramidal and bipinnately paniculate, (10–)19–50 cm long, secondary branches (10–)14–25 cm long toward inflorescence base; peduncle, rachis, bracts, and pedicels densely ferrugineous furfuraceous-lepidote, the scales overlapping, persistent; inflorescence bract unknown; peduncle 3–5 mm long; primary and sec-

ondary branch bracts unknown; floral bracts membranaceous, linear, 0.4–0.6 mm long, ca. 0.1 mm wide, hyaline, apex subulate, prominently and densely black punctate, the margin entire; pedicels cylindrical, 0.4–0.8 mm long. Flowers erect, greenish white; calyx membranaceous, urceolate, the base truncate, 4–5(–6)-merous, 1.3–1.8 mm long, the tube unequally divided, 0.7–0.9 mm long, minutely glandular-papillate, the lobes erect, triangular to subdeltate, 0.6–0.9 mm long, 0.5–0.8 mm wide, apex acute to subacuminate, densely and prominently black punctate, glabrous, the margin entire, minutely glandular-ciliolate; corolla membranaceous, campanulate, 4–5-merous, 3–3.2 mm long, the tube 0.9–1 mm long, the lobes linear, 2.1–2.2 mm long, 0.6–0.7 mm wide, apex long-attenuate, reflexed 180° at anthesis, hyaline, densely and prominently black punctate and punctate-lineate, glabrous, the margin entire; stamens free, 2.1–2.2 mm long, the filaments membranaceous, flat, 1.5–1.7 mm long, hyaline, glabrous, widened basally, inserted at corolla tube base, anthers subversatile, lanceoloid, 0.9–1 mm long, 0.3–0.4 mm wide, apex emarginate, base widely subcordate, longitudinally dehiscent by wide latrorse slits, the connective hyaline, epunctate; pistil obturbinate, 2.1–2.4 mm long, the ovary 0.9–1.1 mm long and in diam., conspicuously black punctate, the style 1.1–1.2 mm long, the stigma truncate, punctiform, the placenta broadly cupuliform, ovules 4, buried in the placenta. Fruit globose, 3–5 mm long and in diam., reddish brown at maturity, densely and prominently black punctate and punctate-lineate, the exocarp thin.

*Distribution. Geissanthus francoae* is endemic to the western slopes of the Central and both slopes of the Western Andean Cordillera in the departments of Antioquia, Valle del Cauca, and Risaralda, Colombia, at 1,830–2,300 m elevation.

*Ecology.* This species is a common understory component of cloud forests in the region, growing along creek margins at the high water line. Label data from *Fonnegra et al. 3202* indicate that *Trigona* bees were observed visiting the flowers, and the flowers are very fragrant.

*Etymology.* It is with great pleasure that I dedicate this species to Pilar Franco, professor at the Herbario Nacional Colombiano, Instituto Nacional de Ciencias, Universidad Nacional de Colombia, colleague and specialist in Euphorbiaceae, Moraceae, and Urticaceae.

The angulate branchlets of this species, with adpressed ferrugineous furfuraceous-lepidote scales, pseudoverticillate leaves, pedicellate flowers with glandular-papillate calyces, subversatile, lanceoloid anthers and obturbinate pistil, clearly indicate a close relationship with *Geissanthus perpuncticulosus.* However, *Geissanthus francoae* is easily recognized by its chartaceous, serrate leaves with adaxial scale margins so overlapped as to form a velvety tomentum, longer petioles, membranaceous perianth, urceolate calyx, and emarginate anthers. It is interesting to note that the two apparent sister taxa are separated by habitat: *Geissanthus perpuncticulosus* occurs in premontane pluvial forests, while *G. francoae* is restricted to cloud forests.

*Paratypes.* COLOMBIA. **Antioquia:** Mcpio. Támesis, Vereda Río Frío, ca. 5°40′N, 75°43′W, 2,100 m, 9 Nov. 1989 (fl), *R. Fonnegra et al. 3202* (COL, JAUM, MO, US). **Valle del Cauca:** Mcpio. Versalles, Bocatoma, NW of Versalles, Finca Maribél, 2,000 m, 11 Oct. 1983 (fr), *W. Devia 250* (COL); Mcpio. Argelia, Vereda Las Brisas, 2,140 m, 21 Jan. 1983 (fr), *P. Franco et al. 1696* (COL); Mcpio. Argelia, Vereda La Bella, Finca La Miranda, 1,830 m, 25 Jan. 1983 (fr), *P. Franco et al. 1875* (COL).

**Geissanthus cogolloi** Pipoly, sp. nov. TYPE: Colombia. Antioquia: Mcpio. Urrao, Parque Nacional Natural "Las Orquídeas," Vereda Calles, Sector Calles, right bank of Río Calles and Quebrada "El Guaguo," 06°32′N, 76°19′W, 1,430–1,490 m, 13 Feb. 1989 (fl), *A. Cogollo, D. Cárdenas & O. Alvarez 3955* (holotype, JAUM; isotypes, COL, FMB, MO). Figure 3.

Species haec cum lamina oblonga, elliptica vel oblanceolata, asymmetrica glabraque, flores pedicellatos, calycem cupuliformem, anthera epunctata *G. lehmannii* affinis, sed ab ea laminis membranaceis (non chartaceis), secus margines integerrimis (nec crenulatis), petiolis canaliculatis (non marginatis) 1.2–1.5 (nec 0.5–0.7) cm longis, pedicellis cylindricis (non obconicis) 2.5–3 (non 1.5–2 ) mm longis, lobis calycinos oblongis (non ovato-triangularibus), antheris apiculatis (nec rotundatis) ad bases subcordatis (nec rotundatis) facile cognoscitur.

Shrub or small tree to 12 m × 11.5 cm DBH; branchlets terete, 2.5–3 mm diam., red-violet, nitid, densely and prominently black punctate-lineate, glabrous. Leaves alternate, membranaceous, bright red-violet in bud, the blades oblong, elliptic or rarely narrowly oblanceolate, (9.9–)12–17(–20.5) cm long, (3.2–)3.5–5(–6) cm wide, apex rostrate to long-acuminate, the acumen 0.8–1.5 cm long, base broadly obtuse, slightly asymmetric, decurrent on the petiole, midrib deeply impressed above, prominently raised and black punctate-lineate below, secondary veins 13–18, slightly raised above, prominently raised below, dark green above and light green below when fresh, nitid and glabrous above, pallid and minutely rufous translucent lepidote below, densely and prominently black punctate and

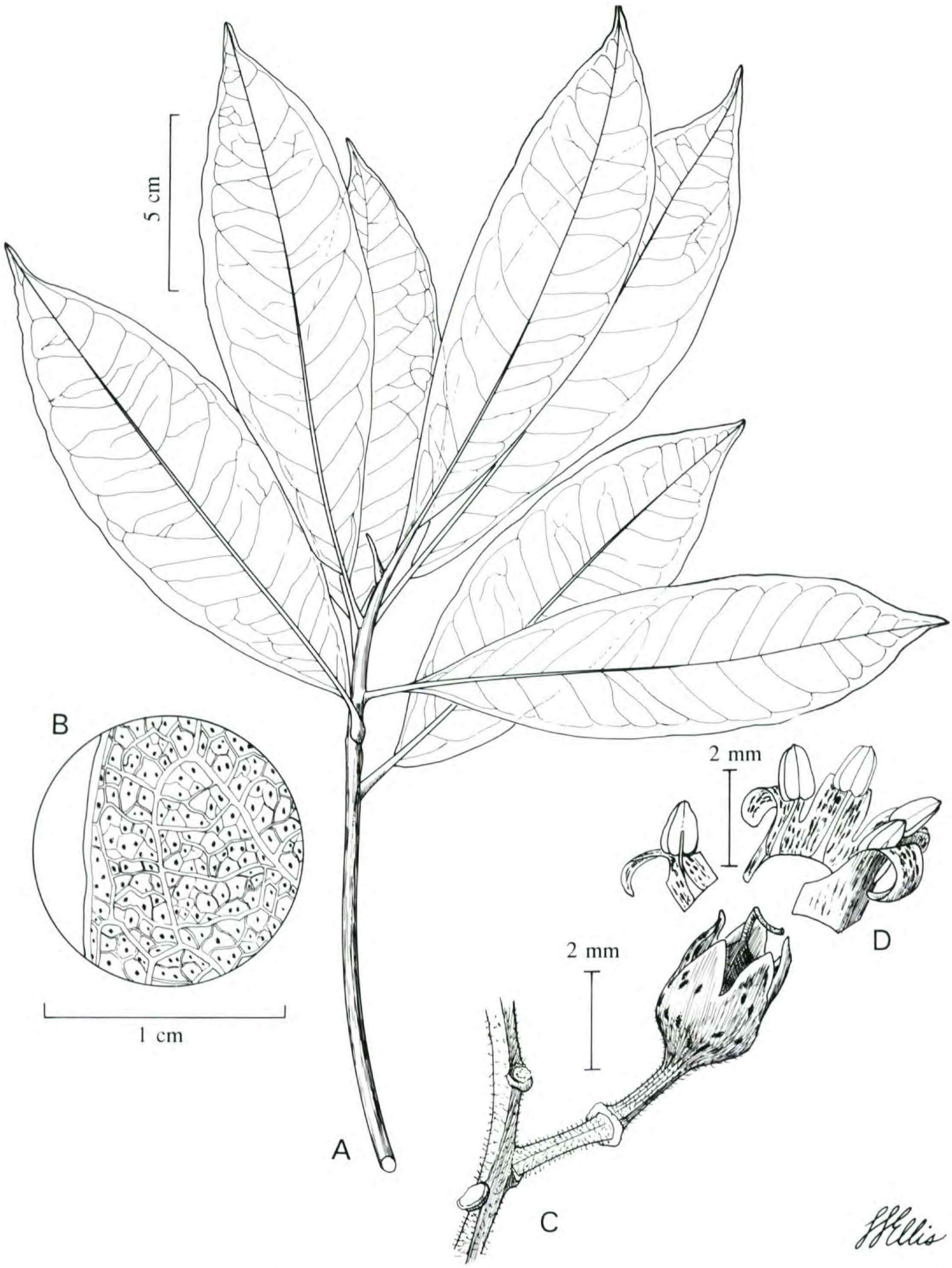


Figure 3. *Geissanthus cogolloi* Pipoly. —A. Habit. —B. Close up, leaf margin. —C. Calyx. —D. Separated corolla. A, B, drawn from *Pipoly et al. 16689*. C, D, drawn from the type.

punctate-lineate above and below, the margin hyaline, flat, entire, glabrous; petiole deeply canaliculate, 1.2–1.5 cm long, red-violet when fresh, densely and prominently black punctate and punctate-lineate, glabrous. Inflorescence terminal, pyramidal paniculate, 8–10(–28) cm long, 8–10(–15) cm wide basally, peduncle, rachis, pedicels, and calyces densely rufous glandular-papillate; inflorescence bract

unknown; peduncle 3–5(–7) mm long; secondary branch bracts membranaceous, ovate, 5–7 mm long, 3–4 mm wide, apex acute, base subtruncate, sessile, glabrous, densely and prominently black puntate and punctate-lineate, the margin entire, hyaline, glabrous; floral bract early caducous, membranaceous, linear, 2–2.2 mm long, 0.2–0.3 mm wide, apex attenuate, glabrous, densely and prominently black punctate and punctate-lineate, the margin entire, glabrous; pedicel cylindrical, 2.5–3 mm long. Flowers erect, white, 3–3.5 mm long; calyx membranaceous, deeply cupuliform, 4–5(–6)-merous, 2.3–2.5 mm long, the tube 0.5–0.8 mm long, unequally divided, the lobes oblong, 1.5–1.8 mm long, 1–1.1 mm wide, erect, apex obtuse, hyaline throughout, densely and prominently red and black punctate and punctate-lineate, sparsely rufous papillate, the margin entire, glabrous; corolla membranaceous, campanulate, 5-merous, 2.9–3.1 mm long, the tube 0.4–0.5 mm long, glabrous, the lobes oblong, 2.2–2.6 mm long, 1–1.2 mm wide, reflexed 180° at anthesis, hyaline, apex obtuse, densely and prominently red punctate and punctate-lineate, the margin entire, glabrous; stamens 5, 2.6–3.1 mm long, the filaments free, slightly expanded basally, 1.5–1.6 mm long, hyaline, epunctate, inserted at corolla tube base, the anthers subversatile, ovoid, 1.1–1.3 mm long, 0.5–0.6 mm wide, apex apiculate, base subcordate, latrorsely dehiscent by narrow longitudinal slits, the connective hyaline, epunctate; pistil obturbinate, 3.9–4.2 mm long, the ovary subglobose, 2–2.2 mm long, 1.8–1.9 mm diam., densely and prominently red punctate, glabrous, the style 1.9–2 mm long, epunctate, the stigma subcapitate, the placenta widely cupuliform, 0.7–0.9 mm long, 1.1–1.3 mm wide, the ovules 5, uniseriate, deeply immersed in the placenta. Fruit unknown.

*Distribution*. Endemic to Las Orquídeas National Park, western slope of the Western Andean Cordillera, Urrao Municipality, Antioquia, Colombia, 1,330–1,490 m elevation.

*Ecology*. *Geissanthus cogolloi* grows on steep slopes in stream canyons throughout the upper premontane forest, just above flood line. Individuals of *C. cogolloi* are found in relatively low numbers (8–10 per hectare), but are conspicuous because of the red-violet color of the terminal bud margins, branchlet apices, and petioles. The premontane forests surveyed in Parque Las Orquídeas receive approximately 6,000–8,000 mm of precipitation annually and are frequently surrounded by clouds, despite their low elevation. *Geissanthus perpuncticulosus* (Lundell) Pipoly, *Cybianthus poeppigii* Mez, and *C. venezuelanus* Mez are common elements of the same forest.

*Etymology*. *Geissanthus cogolloi* is named for Alvaro Cogollo Pacheco, scientific director of the Fundación Jardín Botánico, "Joaquín Antonio Uribe" (JAUM), Medellín, Colombia. He is a specialist in the systematics of Colombian Myristicaceae, and floristics of the Chocó Floristic Province.

The oblong, elliptic, or oblanceolate and glabrous leaves of *Geissanthus cogolloi*, along with its pedicellate flowers, cupuliform calyx, and epunctate anthers, indicate a close relationship with *G. lehmannii*. However, the leaf blades with membranaceous texture and entire margins, canaliculate and longer petioles, long and cylindrical pedicels, oblong corolla lobes, and anthers with an apiculate apex and subcordate base easily distinguish *Geissanthus cogolloi* from *G. lehmannii*. *Geissanthus lehmannii* is reported from an area near Popayán (Department of Cauca) and may be found in the area, but as yet has not been collected.

*Paratypes*. COLOMBIA. **Antioquia:** Mcpio. Urrao, Parque Nacional Natural Las Orquídeas, Quebrada Honda, 06°29′N, 76°14′W, permanent montane rainforest plot, NW of the Calles INDERENA Cabin, Plot W, subplot W2–W3, 1,340 m, 7 Dec. 1992 (ster.), *Pipoly et al. 16689* (COL, FMB, JAUM, MO); Plot W3–W4, Tree #99, 1,330 m, 8 Dec. 1992 (ster.), *Pipoly et al. 16789* (COL, FMB, JAUM, MO, US), (ster.), *Pipoly et al. 16813* (COL, FMB, JAUM, MO, US), (seedling), *Pipoly et al. 16835* (COL, FMB, JAUM, MO), 10 Dec. 1992 (ster.), *Pipoly et al. 16916* (COL, FMB, JAUM, MO, US), (ster.), *Pipoly et al. 16922* (COL, F, FMB, HUA, JAUM, MO, NY, US); Alto de Cuevas, 10 km W of Blanquita, 12 km W of Nutibara, cloud forest, 1,720 m, 3 Mar. 1992 (fl bud), *Gentry et al. 76111A* (FMB, MO).

## New Combinations in *Geissanthus*

Examination of type material, concomitant with recent collections, makes the transfer of *Conomorpha scrobiculata* Cuatrecasas, *Ardisia longistaminea* A. C. Smith, and *Cybianthus perpuncticulosus* (Lundell) Pipoly & Lundell to *Geissanthus* necessary. The new combinations follow, along with revised descriptions and citation of specimens examined for the latter two species.

**Geissanthus scrobiculatus** (Cuatrecasas) Pipoly, comb. nov. Basionym: *Conomorpha scrobiculata* Cuatrecasas, Rev. Acad. Colomb. Ci. Ex. 8: 320. 1951. TYPE: Colombia. Valle del Cauca: costa del Pacífico, Río Yurumanguí, El Papayo, 5 Feb. 1944 (fl, fr), *J. Cuatrecasas 15998* (holotype, F; isotype, COL).

This species is known only from the type, but the calyx development, corolla lobe shape, and anther morphology clearly place this species in *Geissanthus*.

**Geissanthus longistamineus** (A. C. Smith) Pipoly, comb. nov. Basionym: *Ardisia longistaminea* A. C. Smith, Amer. J. Bot. 27: 544. 1940. TYPE: Colombia. Nariño: Gorgonilla Island, 130–200 m, 9 Feb. 1939 (fl), *E. Killip & H. García 33078* (holotype, NY; isotype, US).

Shrub or small tree to 10 m tall; branchlets terete, except angular at apex, 5–8 mm diam., sparsely and minutely rufous glandular-granulose and furfuraceous-lepidote, glabrescent. Leaves pseudoverticillate, chartaceous, the blades narrowly to widely oblanceolate, (15–)19–31(–42.5) cm long, (4–)8–12.5 cm wide, apex acuminate, the acumen (0.7–)1–1.5(–2.2) cm long, base abruptly truncate, midrib impressed above, prominently raised below, the secondary veins 15–23 pairs, smooth or somewhat impressed above, prominently raised and prominently black punctate-lineate below, blades smooth and glabrous above, moderately and minutely furfuraceous-lepidote and black punctate-lineate below, the margin flat, entire, glabrous; petiole canaliculate, (1–)1.5–2.5(–3) cm long, tapered to base, glabrous above, densely and minutely furfuraceous-lepidote below, glabrescent. Inflorescence terminal, pyramidal and bipinnately paniculate, 10–16 cm long, secondary branches 4–6 cm long at base, peduncle, rachis, bracts, and pedicels densely glandular-granulose, glabrescent; inflorescence bract unknown; peduncle obsolete to 3 mm long; primary and secondary branch bracts unknown; floral bracts membranous, linear-lanceolate, 3.2–3.5 mm long, 1–1.1 mm wide, apex attenuate, asymmetric, sparsely and prominently red punctate, the margin hyaline, irregular, with occasional serrulations apically, glabrous; pedicel obconic, 0.2–1.3 mm long, densely glandular-granulose. Flowers erect, 5.8–6.3 mm long; calyx membranaceous, campanulate, whitish, 4–5-merous, 3.4–4 mm long, the tube 1.3–1.5 mm long, unequally divided, the lobes ovate to widely oblong, 2.1–2.5 mm long, 1.5–2 mm wide, apex obtuse, medially thickened, densely and prominently brown punctate, and punctate-lineate, densely glandular-granulose, the margin hyaline, irregular, with occasional papillae, entire, glabrous; corolla membranaceous, starting out tubular, then the lobes opening to become somewhat campanulate, 5.5–5.7 mm long, pinkish cream; early ontogeny: the tube unequally divided, 4.5–5 mm long, the lobes trullate, ca. 0.5–1 mm long, 1–1.1 mm wide, apex acute, erect, hyaline, densely and prominently brown punctate and punctate-lineate, the margin entire, glabrous; corolla at maturity: tube unequally divided, ca. 2 mm long, the lobes linear, 3.5–3.7 mm long, 1–1.4 mm wide, reflexed 180° from tube, hyaline, and as described above; stamens free, 5–5.7 mm long, subequaling the petals, the filaments membranaceous, terete, 4–4.5 mm long, not basally widened, inserted at the base of the corolla tube, the anthers oblongoid, 2.2–2.4 mm long, 0.6–0.8 mm wide, apex obtuse, base deeply cordate, versatile, dehiscent by wide latrorse longitudinal slits, the connective epunctate, hyaline; pistil obturbinate, 3–4 mm long, the ovary 1.2–1.5 mm long, 1–1.1 mm diam., densely and prominently red punctate, sparsely glandular-granulose, the style 1.7–2 mm long, erect, epunctate, the stigma ca. 0.2–0.3 mm long, the placenta depressed-conical, ca. 0.2–0.3 mm long, 0.4–0.5 mm diam., the ovules 5, uniseriate, deeply imbedded in the placenta. Fruit globose, 6–8 mm long and in diam., densely and prominently black punctate and punctate-lineate, exocarp thin.

*Distribution.* Endemic to the Chocó Floristic Province of Colombia and Ecuador, from 80 to 1,150 m elevation.

*Ecology. Geissanthus longistamineus* is a ridgetop species, occurring at margins of primary forest habitats.

*Common name.* "Capulí."

*Specimens examined.* COLOMBIA. **Chocó:** Quibdó–Tutunendo Rd., ca. 3 km W of Tutunendo, 05°46′N, 76°35′W, 80 m, 8 Jan. 1981 (ster.), *A. Gentry et al. 30346* (COL, MO). **Nariño:** Mcpio. de Barbacoas, between Barbacoas and 15 km above Río Telembí, toward Chalchal, 01°40′N, 78°09′W, 170 m, 20 Nov. 1986 (fl), *B. Hammel & R. Bernal 15772* (COL, HUA, MO, US); Barbacoas, Corregimiento Santander, Buenavista to Barbacoas, slopes toward Río Telembí, 200–840 m, 3–5 Aug. 1948 (fl bud), *H. García-Barriga 13190* (COL); Tumaco, near Piñal Dulce, 7 Oct. 1955 (fr), *R. Romero-Castañeda 5342* (COL, MO). ECUADOR. **Cotopaxi:** Tenefuerste, Río Pilalo, km 52–53 Quevedo–Latacunga, 750–900 m, 19 July 1992 (fl), *C. Dodson et al. 13462* (MO, QCA, SEL). **Esmeraldas:** Río Cayapa, Zapallo Grande, 1 km upriver from village, 78°55′W, 0°48′N, 150 m, 3 Aug. 1982 (fr), *L. Kvist & E. Asanza* (AAU, QCA); San Lorenzo, Finca la Chiquita, 01°13′N, 78°49′W, 80 m, 8–15 July 1988 (fl bud), *W. Palacios 2652* (MO, QCNE, US). **Los Ríos:** Río Palenque Biological Station, km 56 Quevedo–Sto. Domingo, 150–220 m, 18 Mar. 1974 (fl), *C. Dodson et al. 5506* (MO, QCA, RPSC, SEL), 11 Aug. 1977 (fr), *C. Dodson et al. 6731* (MO, QCA, RPSC, SEL), 200 m, 6 Feb. 1974 (ster.), *A. Gentry 9684* (MO, RPSC, SEL), 27 Feb. 1974 (fl bud), *A. Gentry 10220* (MO, RPS, SEL), 79°25′W, 00°35′S, 150 m, 19 June 1991 (fr), *W. Palacios & E. Freire 7404* (MO, QCNE); ridge line at El Centinela Ila, on rd. from Patricia Pilar to 24 de Mayo, km 45 on rd. Sto. Domingo to

Quevedo, 600 m, 23 May 1983 (fr), *C. Dodson & A. Gentry 13822* (MO, SEL, RPSC), 650 m, 26 July 1984 (fr), *C. Dodson et al. 14505* (MO, SEL, RPSC). **Manabí:** Mahcalilla National Park, zona de San Sebastián, 01°36′S, 80°42′W, 20 Jan. 1991 (fl), *A. Gentry & C. Josse 72740* (MO, QCNE). **Napo:** Huamaní, Centro Calluhua Yacu, 31 km E of Tena–Baeza Rd., on new rd. to Coca, 0°40′S, 77°40′W, 1,150 m, 24 Dec. 1988 (ster.), *Gentry et al. 64134* (MO, QCNE).

*Geissanthus longistamineus* is a relatively well known member of the genus, especially from the fine gatherings noted above from Ecuador. It appears to have an as yet undescribed sister species from Pasco, Peru, but is immediately distinguished from that and all others by its corolla, which is at first tubular, then splits into long lobes, with obtrullate lobules differentiated at the lobe apices. This unique character allows for rapid recognition in flower, and in fruit the taxon may be recognized by the spreading, but not recurved, calyx lobes and relatively large fruits.

**Geissanthus perpuncticulosus** (Lundell) Pipoly, comb. nov. Basionym: *Ardisia perpuncticulosa* Lundell, Wrightia 5(6): 194. 1975. *Cybianthus perpuncticulosus* (Lundell) Pipoly & Lundell, Wrightia 7(2): 52. 1982. TYPE: Panama. Darién: vic. of Cerro Tacaracuna, summit camp, along N stream of camp, 1 Feb. 1975 (fr), *A. Gentry & S. Mori 14049* (holotype, LL-TEX; isotypes, MO—2 sheets).

Shrub or small tree to 15 m tall; branchlets angulate, (4.5–)6–8 mm diam., densely furfuraceous-lepidote, glabrescent. Leaves pseudoverticillate, membranaceous, the blades obovate to oblanceolate, or rarely elliptic, (13.5–)16–28(–44.5) cm long, (6–)8–12(–18.5) cm wide, apex subacuminate to long-acuminate, the acumen 0.5–1.5 cm long, base broadly cuneate, decurrent on the petiole, midrib impressed and glabrous above, prominently raised and densely furfuraceous-lepidote below, secondary veins 16–27 pairs, somewhat impressed and glabrous above, prominently raised and densely furfuraceous-lepidote below, densely and minutely scrobiculate and black perpuncticulose above, prominently black punctate and sparsely furfuraceous-lepidote below, the margin flat, entire, glabrous; petioles canaliculate, 1–1.5 cm long, glabrous above, densely furfuraceous-lepidote, glabrescent. Inflorescence a terminal or rarely (*E. Forero et al. 6869*) axillary pyramidal bipinnate panicle, (8–)13–18(–27) cm long, (11.5–)13–23(–34.5) cm wide at base, inflorescence bract membranaceous, foliaceous, oblanceolate, 4.8–5 cm long, 1.3–1.5 cm wide, apex long-acuminate, the acumen 0.3–0.5 cm long, base cuneate, sparsely fufuraceous above and below except along midrib and secondary veins, midrib impressed above, prominently raised below, secondary veins 13–15 pairs, scrobiculate and densely black perpuncticulose above, prominently black punctate below, the margin flat, entire, glabrous, caducous, the bract petiole canaliculate, ca. 0.5 cm long, glabrous above, densely furfuraceous-lepidote below; peduncle, rachis, secondary branches and pedicels densely and minutely furfuraceous-lepidote; peduncle obsolete to 1 cm long; secondary branch bracts membranaceous, oblanceolate, 0.3–0.5 mm long, ca. 0.1–0.2 mm wide, apex acuminate, base cuneate, furfuraceous-lepidote and densely and prominently black punctate above and below, the margin flat, entire, glabrous; floral bracts membranaceous, linear-lanceolate, 1–1.5 mm long, 0.2–0.3 mm wide, apex long-attenuate, prominently black punctate, translucent glandular-lepidote and glandular-papillate, the margin irregular, entire; pedicels cylindrical, 0.9–1.5 mm long, densely translucent glandular-lepidote and glandular-papillate. Flowers erect, white; calyx chartaceous, cupuliform, 4–5(–6)-merous, 1.2–1.7 mm long, the tube 0.6–0.7 mm long, very unequally divided, the lobes widely ovate to linear, 0.9–1.1 mm long, 0.4–1.1 mm wide, apex obtuse, densely and prominently orange punctate, minutely red glandular-papillate, the margin apically erose, hyaline, glabrous; corolla chartaceous, campanulate, 2.4–2.7 mm long, the tube 0.3–0.5 mm long, the lobes linear-lanceolate, 2.1–2.3 mm long, 0.3–0.4 mm wide, reflexed 180° at anthesis, apex attenuate, densely and prominently orange punctate, glabrous, the margin entire, glabrous; stamens free, 1.7–2 mm long, the filaments membranaceous, flat, 1.4–1.7 mm long, widened basally, inserted at corolla tube base, anthers subversatile, lanceoloid, 0.7–0.8 mm long, 0.2–0.3 mm wide, apex obtuse, base cordate, longitudinally dehiscent by narrow, latrorse, longitudinal slits, the connective hyaline, epunctate; pistil obturbinate, 1.4–1.7 mm long, the ovary 0.7–0.8 mm long, 0.3–0.4 mm diam., densely and prominently red punctate, glabrous, the style 0.6–0.7 mm long, curved, the stigma capitate, the placenta globose, 0.5–0.6 mm long, 0.2–0.3 mm diam., ovules 4, buried in the placenta. Fruit globose, 3.5–4 mm long and in diam., densely and prominently black punctate and punctate-lineate, the exocarp thin, reddish purple at maturity.

*Distribution.* Endemic to the Chocó Floristic Province, Panama (Darién) and Colombia (Antioquia, Chocó), at 100–1,400 m.

*Ecology. Geissanthus perpuncticulosus* grows in ravines on gravel islands in creekbeds, where fre-

quent flash floods occur with onset of heavy rains. Thus far it is known from tall pluvial and premontane pluvial forests, in areas that receive ca. 8,000 mm annual precipitation.

*Etymology*. The specific epithet refers to the numerous small punctations that adorn the leaves of this species.

Lundell (1975) described this species in *Ardisia* because of its furfuraceous-lepidote tomentum, but indicated its generic position was uncertain, and furthermore, that it might belong to *Gentlea* Lundell. The type specimen is in late fruit and the regularity in merosity of the remaining fruits on it indicated that *Cybianthus* subg. *Weigeltia* (A. DC.) Agostini was in order, so Pipoly and Lundell transferred it (Pipoly & Lundell, 1982). However, with additional material, close examination of the inflorescence vestiture, the campanulate corolla, linear petals, free filaments, and subversatile, latrorsely dehiscent anthers, placement in *Geissanthus* was indicated.

*Geissanthus perpuncticulosus* is most closely related to *G. francoae*, but is easily distinguished from that taxon by its membranaceous leaves, sparsely placed abaxial lepidote scales, shorter petioles, chartaceous perianth, cupuliform calyx, shorter corolla, obtuse anthers, and premontane forest habitat.

*Specimens examined*. COLOMBIA. **Antioquia:** Mcpio. de Urrao, Vereda Calles, Parque Nacional Natural "Las Orquídeas," sector Cabaña de Calles, Quebrada Agudelo, 06°31′N, 76°19′W, 1,300–1,400 m, 1 Apr. 1992 (fl, fr), *D. Cardenas et al. 3209* (COL, FMB, JAUM, MO); Quebrada Honda, range NW of Cabaña de Calles, Plot W, 06°29′N, 76°14′W, 1,330 m, 8 Dec. 1992 (ster.), *Pipoly et al. 16813* (COL, FMB, JAUM, MO). **Chocó:** Mcpio. San José del Palmar, bank of Río Torito, tributary of Río Hábita, W slopes, Finca Los Guaduales, 630–730 m, 8 Mar. 1980 (fl, fr), *E. Forero et al. 6869* (COL, MO), W slopes, 630–680 m, 10 Mar. 1980 (fr), *E. Forero et al. 6961* (COL, MO), E slopes, 630 m, 21 Mar. 1980 (fl bud), *E. Forero et al. 7554* (COL, MO), 21 Mar. 1980 (fr), *E. Forero et al. 7565* (COL, MO); Río Mutatá, tributary of Río El Valle, between base of Alto del Buey and river mouth, 100–150 m, 9 Aug. 1976 (fr), *A. Gentry & M. Fallen 17452* (AAU, COL, LL-TEX, MO).

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